

Figure 1

Element	Pools of regulatory elements					
	1	2	3	4	5	6
SRE	1	4	1	1	1	4
MEF-2	1	1	4	1	1	1
MEF-1	1	1	1	4	1	4
TEF-1	1	1	1	1	4	1

## Figure 2

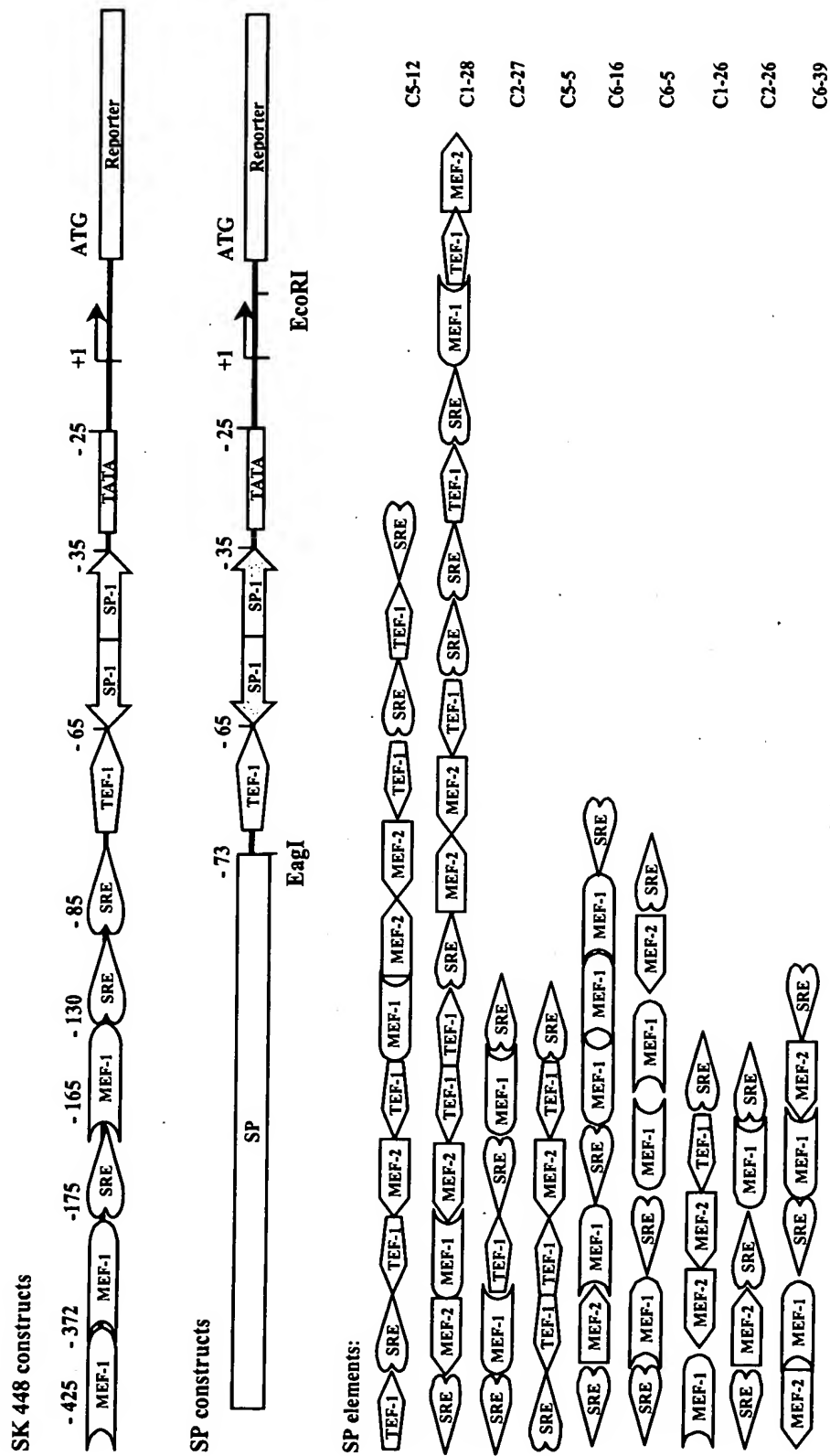
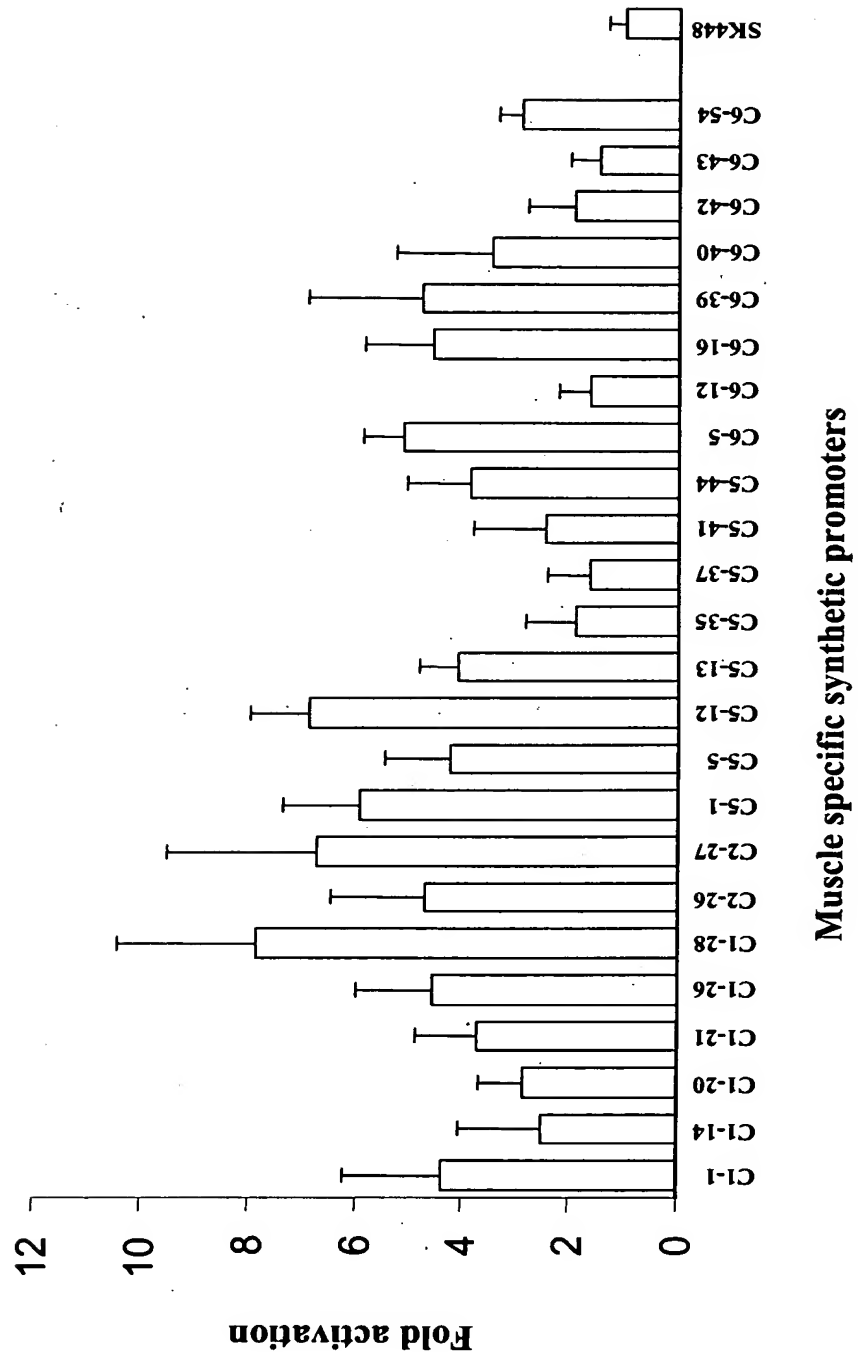


Figure 3



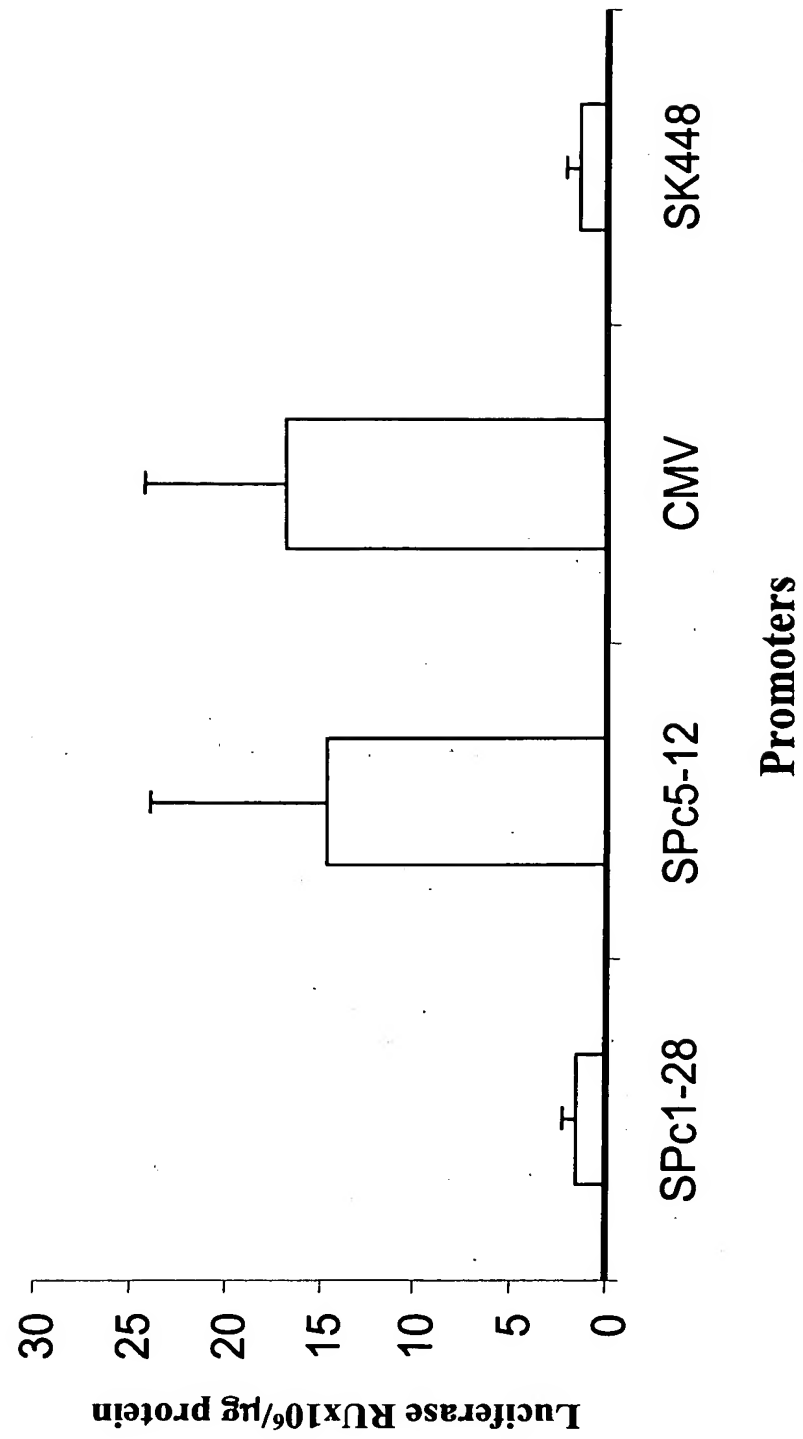
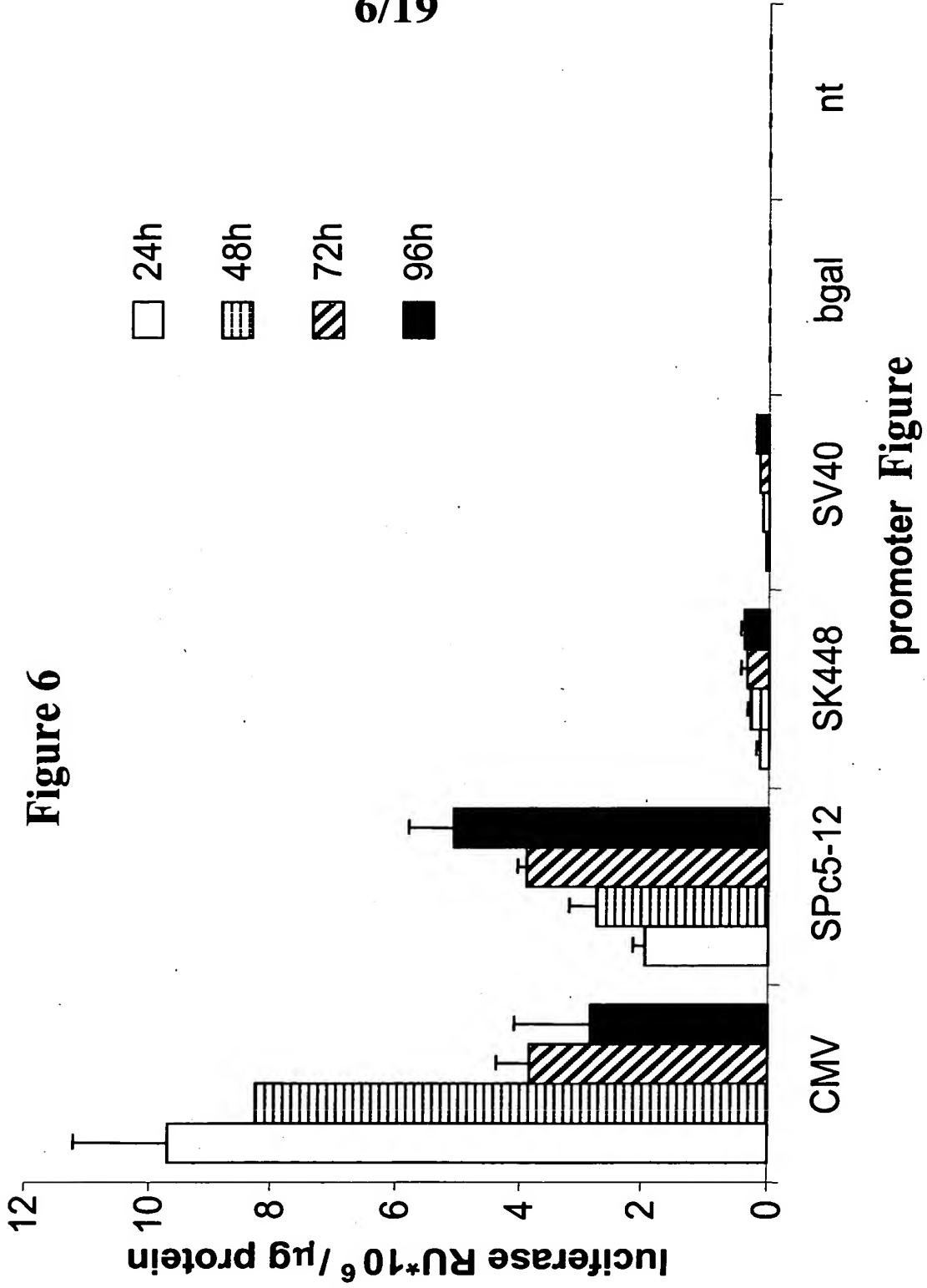
**Figure 4**

Figure 5

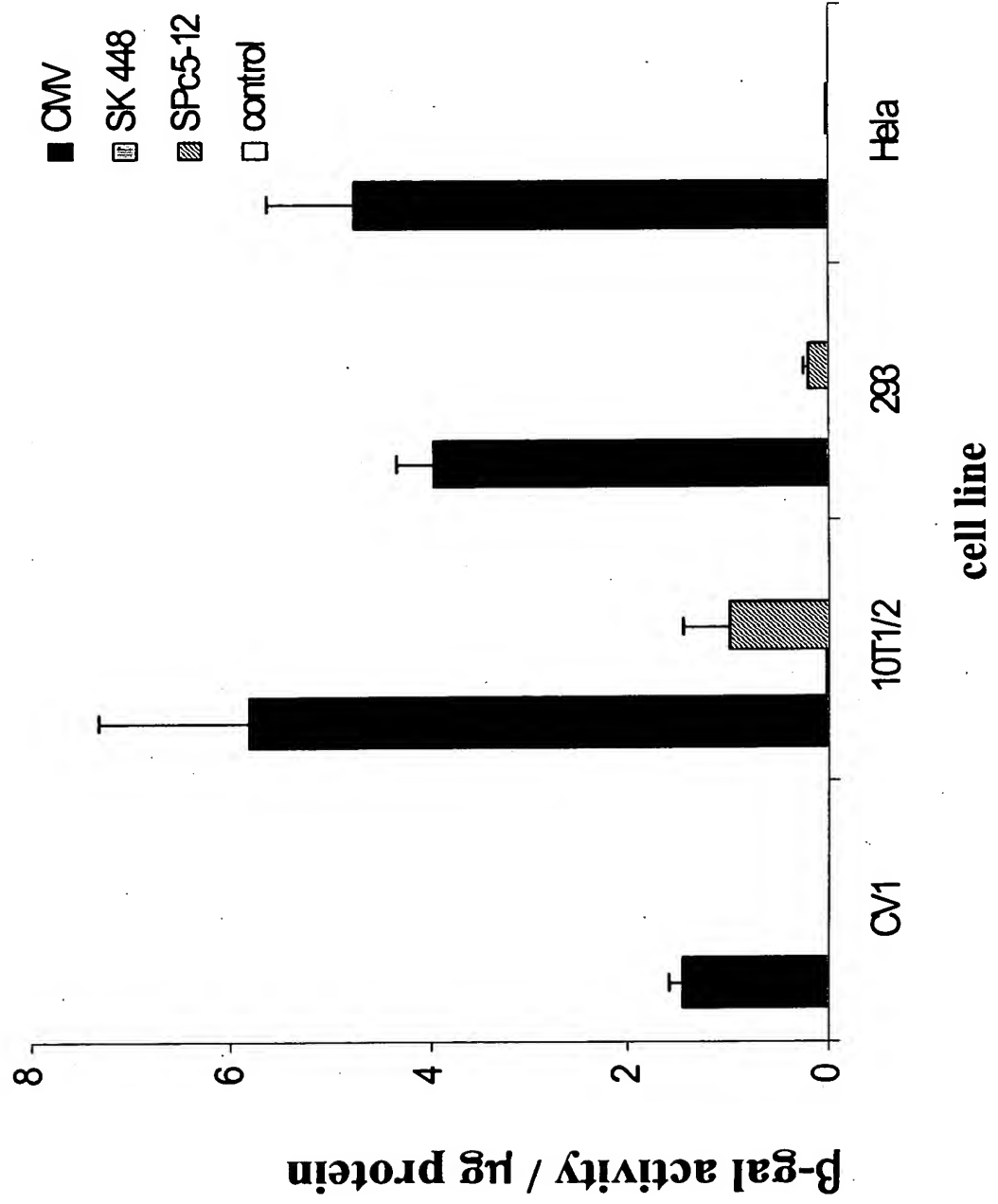




**Figure 7**

	24 hours	48 hours	72 hours	96 hours
CMV	9.706	8.240	3.832	2.846
SPc5-12	1.957	2.757	3.893	5.070
SK448	0.167	0.304	0.356	0.383
SV40	0.064	0.112	0.136	0.182
bgal	0.000	0.002	0.003	0.003
nt	0.001	0.002	0.002	0.003

Figure 8



**Figure 9**

T B I Lg St K Lv H M Sp

**9/19**

$\beta$ -gal

18S



**Figure 10**

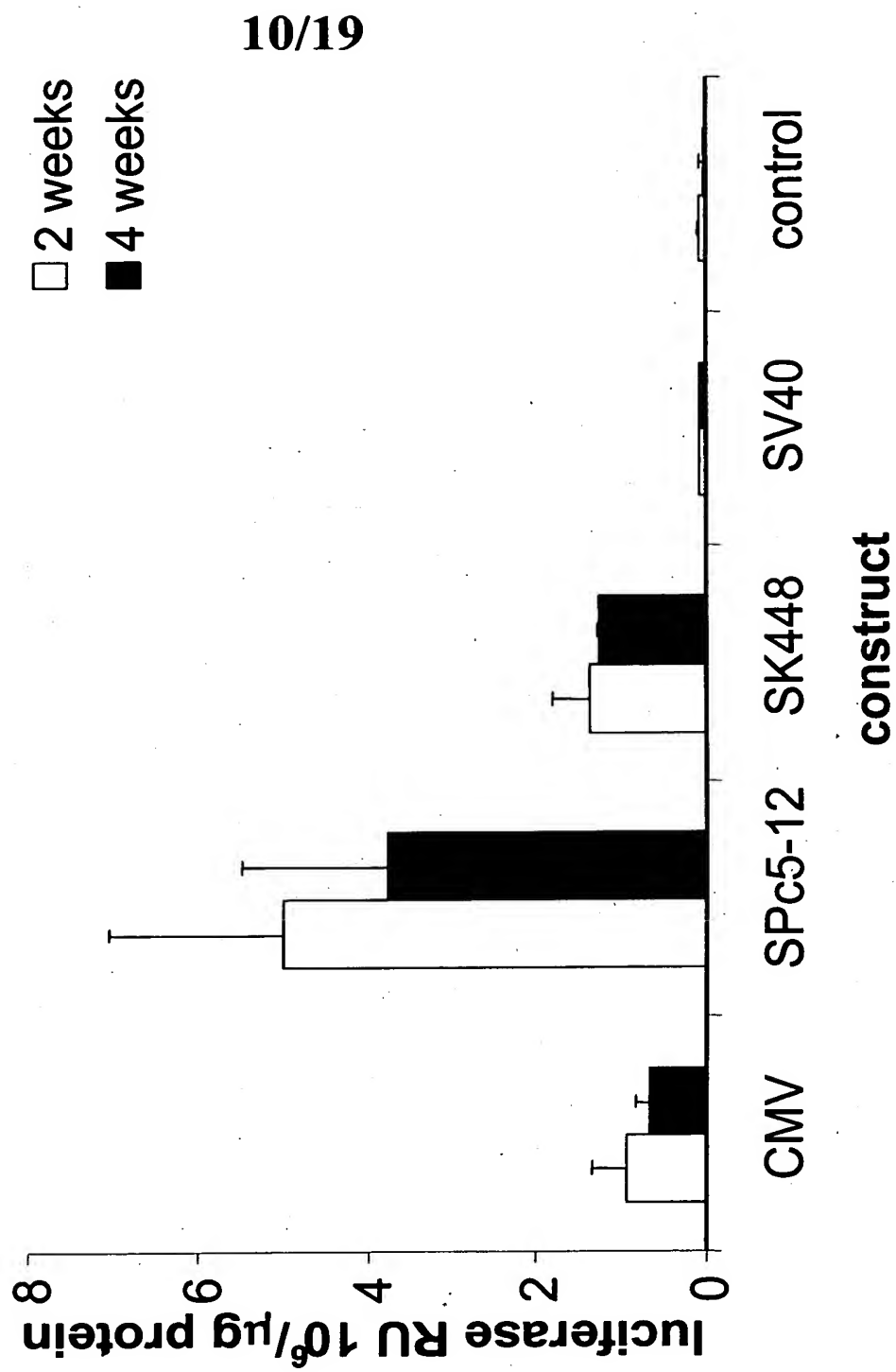
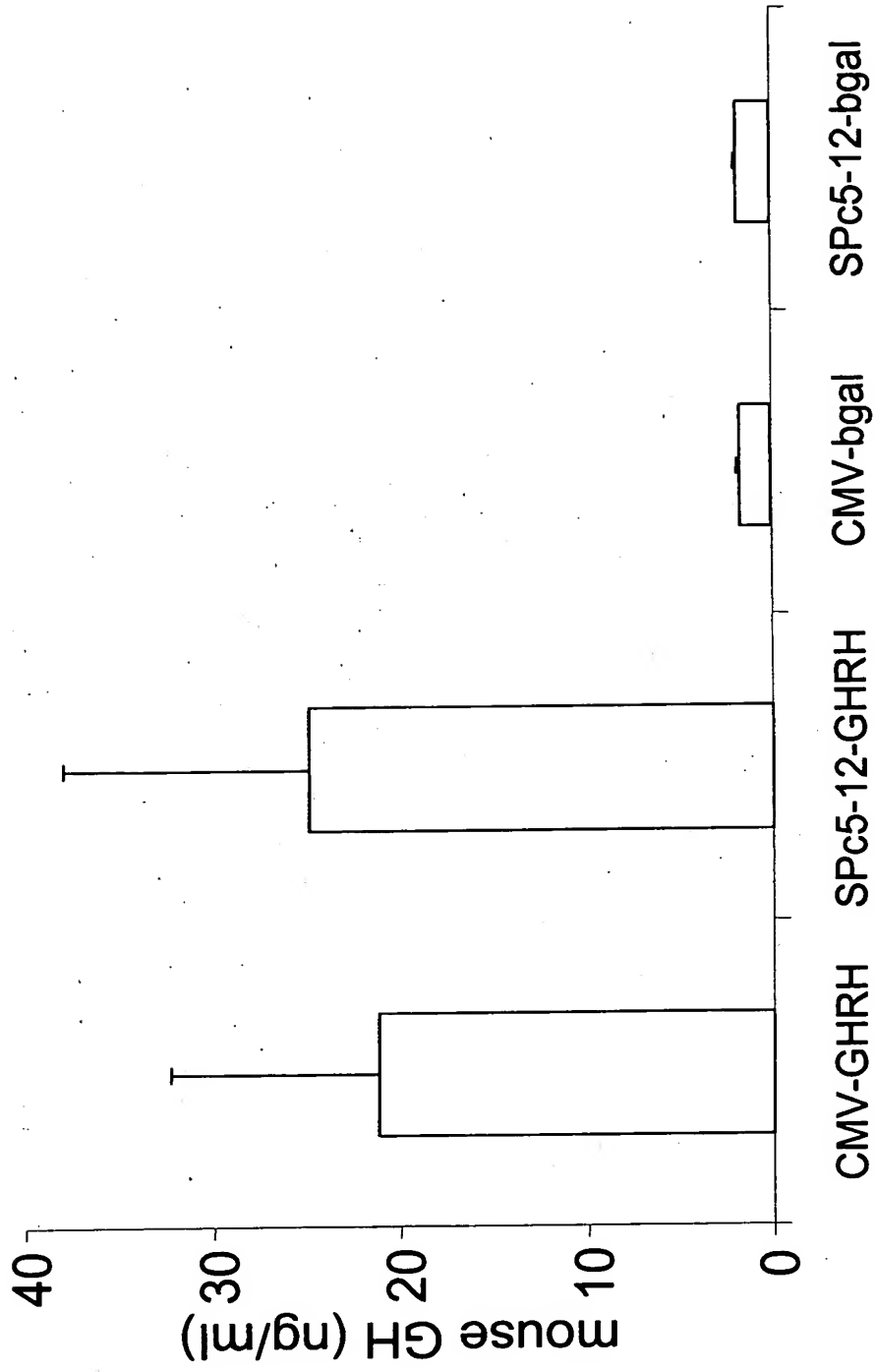


Figure 11



12/19

cl-26

cggccgaggg cggcgggga ggcagcaggt gttggcacca ttctcaccg ctctaaaaat 60  
 → ← TEF-1 ← SRE → SRE →  
 aactcccgtg aggaatggtg ccgtcgccat atttgggtgt cgacacccaa atatggcgac 120  
 ← TEF-1 ← MEF-1 SRE → MEF-1  
 ggggtgaggaa tgggtggcag gcagcaggtg ttggacacc caaatatggc gacggccaac 180  
 MEF-1 → ← MEF-2 ← MEF-2 ← TEF-1  
 acctgctgcc tgcgggagt tattttttaga gctgggagtt atttttagag cgttgaggaa 240  
 SRE →  
 tgggtggacac ccaaataatgg cgacggcccg ggccgcattc ctggggggccg ggcggtgctc 300  
 ccgcccgcct cgataaaaagg ctccggggcc ggccggcgcc cacgagctac ccggaggagc 360  
 gggaggcgcc aagctctaga 380

Figure 12

EagI  
 -----  
 EclXI  
 -----  
 McrI  
 -----  
 XmaIII  
 -----  
 BsiEI  
 -----  
 1 GGC GGC GAG GGC GGC GGC GGC CAG GCAG CAG GTG TTG GCAC CATT CCT CAC CGCTCTAAAA  
 CCG CCG GCTC CCG CCG CCCC GTCCGTCGTC CACAACCGTG GTAAGGAGTG GCGAGATTTT  
 HincII  
 -----  
 HindII  
 -----  
 Sall  
 -----  
 TaqI  
 -----  
 AccI  
 -----  
 61 ATA ACT CCG TGAGGAATGG TGCCGTCGCC ATATTTGGGT GTCCACACCC AAATATGGCG  
 TATTGAGGGC ACTCCTTACC ACGGCAGCGG TATAAACCCA CAGCTGTGGG TTTATACCGC  
 BsmFI  
 -----  
 121 ACGGGTGAGG AATGGTGGGC AGGCAGCAGG TGTGGGACA CCAAATATG GCGACGGCCA  
 TGCCCACTCC TTACCACCGG TCCGTCGTCC ACAACCCTGT GGGTTTATAC CGCTGCCGGT  
 181 ACACCTGCTG CCTGCCGGGA GTTATTTTTA GAGCGGGGAG TTATTTTATG AGCGGTGAGG  
 TGTGGACGAC GGACGGCCCT CAATAAAAAT CTCGCCCTC AATAAAAATC TCGCCACTCC  
 XmaIII BmyI  
 -----  
 EclXI EcoRII BsiHKAI  
 -----  
 EagI BstNI Bsp1286I  
 -----  
 McrI MvaI HgiAI  
 -----  
 BsiEI BsmI AspHI  
 -----  
 241 AATGGTGGAC ACCCAAATAT GGCAGCGGCC GGGGCCGCAT TCCTGGGGGC CGGGCGGTGC  
 TTACCACCTG TGGGTTTATA CCGCTGCCGG CCGCGGCGTA AGGACCCCGG GCCCGCCACG  
 BmyI  
 ---  
 BsiHKAI NgoMI  
 ---  
 Bsp1286I Cfr10I  
 ---  
 HgiAI NaeI

**c2-26**

← SRE                      MEF-1 →                      ← SRE  
 ggccgctgcc atatttgggt gtc ccaacac ctgctgcctg cc ccgctgcc atatttgggt 60  
                         ← MEF-2                      SRE →  
 gtccggagtt atttttagag cg cacacca aatatggcga cg gccggg gc cgcattcctg 120  
 ggggccgggc ggtgctccc cccgcctcg a taaaa ggctc cggggccggc ggcggcccac 180  
 gagctaccgc gaggagcggg aggcgccaa g ctctaga 217

	EagI		BsmFI	BbvI		
	-----		-----	-----		
1	CGGCCGTCGC CATATTTGGG TGTCCCAACA CCTGCTGCCT GCCCGTCGC CATATTTGGG GCCGGCAGCG GTATAAACCC ACAGGGTGTG GGACGACGGA CGGGGCAGCG GTATAAACCC					
						BstNI --- EcoRII --- MvaI ---
					EagI	BsmI
					-----	-----
51	TGTCGGGAGT TATTTTTAGA NNGACACCC AAATATGGCG ACGGCCGGGG CCGCATTCCT ACAGCCCTCA ATAAAAATCT NGNCTGTGGG TTTATACCGC TGCCGGCCCC GCGGTAAGGA					
		BmyI -----				
		BsiHKAI -----			NgoMI -----	
	EcoRII	Bsp1286I -----			Cfr10I -----	
	MvaI	HgiAI -----			NaeI -----	
	BstNI	AspHI -----	TaqI -----		BsrFI -----	
21	GGGGGCCGGG CGGTGCTCCC GCCCGCTCG ATAAAAGGCT CCGGGGCCGG CCGCGGCCCA CCCCCGGCCG GCCACGAGGG CGGGCGGAGC TATTITCCGA GGCCCCGGCC GCCGCGGGT					
			BanI -----			
			BsaHI -----			
			CfoI -----			
			HaeII -----			
			HhaI -----			
			HinPII -----			
			KasI MaeI -----			
			NarI XbaI -----			
		BsrBI AcyI BfaI -----				
1	CGAGCTACCC GGAGGAGCGG GAGGCGCCAA GCTCTAGA GCTCGATGGG CCTCCTCGCC CTCCGCGGTT CGAGATCT					

## Figure 13

c2-27

← SRE                      MEF-1 →                      SRE →  
 ggccgctcgcc atatttgggt gtc ccaacac tgctgcctgc cgacacccaa atatggcgac 60  
 ← TEF-1                      MEF-1 →                      SRE →  
 ggtgaggaa tgggtgccaac acctgctgcc tgccgacacc caaatatggc gacggccggg 120  
 gccgcattcc tgggggcccgg gcggtgctcc cgccgcctc gataaaaggc tccggggccc 180  
 gcggcgcccc acgagctacc cgaggagcg ggaggcgcca agctctaga 229

Figure 14

1	EagI ~~~~~	BsmFI ~~~~~			
	CGGCCGTCGC CATATTGGG TGTCCCAACA CTGCTGCCTG CCGACACCCA AATATGGCGA				
	GCCGGCAGCG GTATAAACCC ACAGGGTTGT GACGACGGAC GGCTGTGGGT TTATACCGCT				
61	HphI ~~~~~	BspMI ~~~~~		EagI ~~~~~	
	CGGGTGAGGA ATGGTGCCAA CACCTGCTGC CTGCCGACAC CCAAATATGG CGACGGCCGG				
	GCCCACTCCT TACCACGGTT GTGGACGACG GACGGCTGTG GGTTTATACC GCTGCCGGCC				
		BmyI ~~~~~			
	EcoRII ~~~~~	BsiHKAI ~~~~~		NgoMI ~~~	
	BstNI ~~~~~	Bsp1286I ~~~~~		Cfr10I ~~~	
	MvaI ~~~~~	HgiAI ~~~~~		NaeI ~~~	
	BsmI ~~~~~	AspHI ~~~~~	TaqI ~~~~~	BsrFI ~~~~~	
121	GGCCGCATTC CTGGGGGCCG GCGGGTGCTC CCGCCCGCCT CGATAAAAGG CTCCGGGGCC				
	CCGGCGTAAG GACCCCCGGC CCGCCACGAG GCGGGGCGGA GCTATTTTCC GAGGCCCCGG				
		BsaHI ~~~~~			
	Cfr10I ~~~	CfoI ~~~~~			
		HaeII ~~~~~			
		HhaI ~~~~~			
		HinPII ~~~~~			
	NaeI ~~~	KasI ~~~~~	MaeI ~~~~~		
	NgoMI ~~~	NarI ~~~~~	XbaI ~~~~~		
	BsrFI ~~~~~	BsrBI ~~~~~	AcyI ~~~~~	BfaI ~~~~~	
181	GGCGGCGGCC CACGAGCTAC CCGGAGGAGC GGGAGGCGCC AAGCTCTAGA				
	CCGCCGCCGG GTGCTCGATG GGCCTCCTCG CCCTCCGCGG TTCGAGATCT				

		EagI						
		-----						
1		CGGCCGTCGC	CATATTTGGG	TGTCCACCAT	TCCTCACCGC	TCTAAAAATA	ACTCCCGTGA	
		GCCGGCAGCG	GTATAAACCC	ACAGGTGGTA	AGGAGTGGCG	AGATTTTTAT	TGAGGGCACT	
		ApaLI			BsmFI			
		-----			-----			
		SnoI						
		-----						
		Alw44I			AvaI		EagI	
		-----			-----		-----	
61		GGAATGGTGC	ACCATTCTCT	ACCCGTCGCC	ATATTTGGGT	GTCCCGAGGG	CGGACGGCCG	
		CCTTACCACG	TGGTAAGGAG	TGGGCAGCGG	TATAAACCCA	CAGGGCTCCC	GCCTGCCGGC	
		BstNI			Cfr10I			
		-----			--			
		EcoRII			NgoMI			
		-----			--			
		MvaI			NaeI			
		-----			--			
		BsmI			TaqI		BsrFI	
		-----			-----		-----	
121		GGGCCGCATT	CCTGGGGGCC	GGGCGGTGCT	CCCGCCCCGC	TCGATAAAAG	GCTCCGGGGC	
		CCCGGCGTAA	GGACCCCCGG	CCCGCCACGA	GGGCGGGCGG	AGCTATTTTC	CGAGGCCCCG	
					BanI			
					-----			
					BsaHI			
					-----			
	Cfr10I				CfoI			
	----				-----			
					HaeII			
					-----			
					HhaI			
					-----			
					HinPII			
					-----			
	NaeI				KasI	MaeI		
	----				-----	-----		
	NgoMI				NarI	XbaI		
	----				-----	-----		
	BsrFI				AcyI	BfaI		
	----				-----	-----		
181		CGGCGGCGGC	CCACGAGCTA	CCCGGAGGAG	CGGGAGGCGC	CAAGCTCTAG	A	
		GCCGCCGCCG	GGTGCTCGAT	GGGCCTCCTC	GCCCTCCGCG	GTTCGAGATC	T	

c5-12

ggccgctccgc cttcggcacc atctctcag ga caccctaaata tggcgacggg tgaggaatgg 60  
 SRE → ← TEF-1  
 ← MEF-2 ← MEF-1 MEF-2  
tggggagtta ttttttagagc ggtgaggaag gtgggcaggc aqcagggtgt ggcgctctaa 120  
 → ← MEF-2 SRE →  
aaataactcc cgggagttat ttttagagcg gaggaatggt gacacccaa atatggcgac 180  
 ← SRE  
ggttcctcac ccgtcgccat atttgggtgt cgcctcgg ccggggccgc attcctgggg 240  
 gcccggcggt gctcccgccc gcctcgataa aaggctccgg ggccggcggc ggcccacgag 300  
 ctaccgggag gagcgggagg cgccaagctc taga 334

Figure 16

1                   EagI                   FokI  
 -----  
 CGGCCGTCCG CCTTCGGCAC CATCCTCACG ACACCCAAAT ATGGCGACGG GTGAGGAATG  
 GCCGCGAGGC GGAAGCCGTG GTAGGAGTGC TGTGGGTTTA TACCGCTGCC CACTCCTTAC  
 BspMI  
 -----  
 BbvI  
 61                   GTGGGGAGTT ATTTTATAGAG CGGTGAGGAA GGTGGGCAGG CAGCAGGTGT TGGCGCTCTA  
 CACCCCTCAA TAAAAATCTC GCCACTCCTT CCACCCGTCC GTCGTCCACA ACCGCGAGAT  
 SmaI  
 -----  
 XmaI  
 -----  
 AvaI  
 -----  
 121                   AAAATAACTC CCGGAGTTA TTTTATAGAG GGAGGAATGG TGGACACCCA AATATGGCGA  
 TTTTATTGAG GGCCCTCAAT AAAAATCTCG CCTCCTTACC ACCTGTGGGT TTATACCGGT  
 BstNI  
 -----  
 EcoRII  
 -----  
 MvaI  
 -----  
 181                   EagI                   BsmI  
 -----  
 CGGTTCTCTCA CCCGTCGCCA TATTTGGGTG TCCGCGCTCG GCCGGGGCCG CATTCTGGG  
 GCCAAGGAGT GGCAGCGGT ATAAACCCAC AGGCGGGAGC CGGCCCGGC GTAAGGACCC  
 BmyI  
 -----  
 BsiHKAI  
 -----  
 Bsp1286I  
 -----  
 HgiAI  
 -----  
 AspHI                   TaqI                   BsrFI  
 -----  
 241                   GGCCGGGCGG TGCTCCCGCC CGCCTCGATA AAAGGCTCCG GGGCCGGCGG CGGCCACGA  
 CCGGCCCGCC ACGAGGGCGG GCGGAGCTAT TTTCCGAGGC CCGGCCCGCC GCCGGGTGCT  
 BsaHI  
 -----  
 KasI                   MaeI  
 -----  
 NarI                   XbaI  
 -----  
 AcyI                   BfaI  
 -----  
 301                   GCTACCCGGA GGAGCGGGAG GCGCCAAGCT CTAGA  
 CGATGGGCTT CCTCGCCCTC CGCGGTTCGA GATCT

c6-5

```

      ← SRE          MEP-2 →          ← MEP-1
ggccgctcgcc atattttgggt gtcgctcta aaaataactc ccggcaggca gcagggtgtg 60

      MEP-1 →          SRE →          ← MEP-1
gccaacacct gctgcctgcc gacaccaa atggcgacgg ggcaggcagc aggtgttg 120

      SRE →
acacccaa atggcgacgg ccggggccgc attcctgggg gccggggcgg gtcctccgccc 180

gcctcgataa aaggctccgg ggccggcggc ggcccacgag ctaccgggag gagcgggagg 240

cgccaagctc taga 254

```

Figure 17

```

      MscI
      EagI
      -----
1  CGGCGCTCGC CATATTTGGG TGTCCGCTCT AAAAATAACT CCCGGCAGGC AGCAGGTGTT
   GCCGGCAGCG GTATAAACC ACAGGCGAGA TTTTATTGA GGGCCGTCCG TCGTCCACAA

      MscI
      -----
      MluNI
      -----
61 GGCCAACACC TGCTGCCTGC CGACACCAAA TATGGCGACG GGGCAGGCAG CAGGTGTTGG
   CCGGTTGTGG ACGACGGACG GCTGTGTTT ATACCGCTGC CCCGTCCGTC GTCCACAACC

                                     BmyI
                                     -----
                                     BsiHKAI
                                     -----
                                     Bsp1286I
                                     -----
                                     HgiAI
                                     -----
                                     AspHI
                                     -----
      BsmFI          EagI          BsmI
      -----
121 GACACCCAAA TATGGCGACG GCCGGGGCCG CATTCCTGGG GGCCGGGCGG TGCTCCCGCC
   CTGTGGGTTT ATACCGCTGC CGGCCCCGCG GTAAGGACCC CCGGCCCCGC ACGAGGGCGG

                                     BanI
                                     -----
                                     BsaHI
                                     -----
                                     HaeII
                                     -----
                                     KsiI
                                     -----
                                     NarI
                                     -----
                                     AcyI
                                     -----

      TaqI          Cfr10I
      -----
      -----
      NaeI
      -----
      NgoMI
      -----
      BsrFI
      -----
181 CGCCTCGATA AAAGGCTCCG GGGCCGGCGG CGGCCACGA GCTACCGGA GGAGCGGGAG
   GCGGAGCTAT TTCCGAGGC CCCGGCCGCC GCCGGGTGCT CGATGGGCT CCTCGCCCTC

      BanI
      -----
      BsaHI
      -----
      CfoI
      -----
      HaeII
      -----
      HhaI
      -----
      HinfII
      -----
      KsiI          MaeI

```

c6-16

ggccgagggc ggacacaaa tatggcgacg gggcaggcag caggtgttg ggcaggcagc 60  
 SRE → ← MEF-1 ← MEF-1/  
 ← MEF-1 MEF-1 → SRE → ← MEF-1/  
 aggtgttggc caacacctgc tgcctgcc ga cacccaaata tggcgacgg gcaggcagca 120  
 ← MEF-1 ← MEF-2 SRE →  
 ggtgttgggg gagttatattt tagagcgg ac acccaaatat ggcgacgg cc ggggccgcat 180  
 tcctgggggc cgggcgggtgc tcccgcccg ctcg atataaa gggtccgggg ccggcgggcg 240  
 cccacgagct acccggagga gcgggaggcg ccaagctcta ga 282

Figure 18

EagI  
 -----  
 1 CGGCCGAGGG CGGACACCAA ATATGGCGAC GGGGCAGGCA GCAGGTGTTG GGCAGGCAG  
 GCCGGCTCCC GCCTGTGGTT TATACCGCTG CCCCCTCCGT CGTCCACAAC CCCGTCCGTC  
  
 MscI  
 -----  
 MluNI  
 -----  
 61 CAGGTGTGG CCAACACCTG CTGCCTGCCG ACACCCAAAT ATGGCGACGG GGCAGGCAGC  
 GTCCACAACC GGTGTGGAC GACGGACGGC TGTGGGTTTA TACCGCTGCC CCGTCCGTCG  
  
 EagI BsmI  
 -----  
 121 AGGTGTGGG GGAGTTATTT TTAGAGCGGA CACCCAAATA TGGCGACGGC CGGGGCCGCA  
 TCCACAACCC CCTCAATAAA AATCTCGCCT GTGGGTTTAT ACCGCTGCCG GCCCGGGCGT  
  
 BmyI  
 -----  
 EcoRII BsiHKAI NgoMI  
 -----  
 BstNI Bsp1286I Cfr10I  
 -----  
 MvaI HgiAI NaeI  
 -----  
 BsmI AspHI TaqI BsrFI  
 -----  
 181 TTCCTGGGGG CCGGGCGGTG CTCCCGCCCG CCTCGATAAA AGGCTCCGGG GCCGGCGGCG  
 AAGGACCCCC GGCCCGCCAC GAGGGCGGGC GGAGCTATT TCCGAGGCC CGGCCGCCG  
  
 BanI  
 -----  
 BsaHI  
 -----  
 CfoI  
 -----  
 HaeII  
 -----  
 HhaI  
 -----  
 HinPII  
 -----  
 KasI MaeI  
 -----  
 NarI XbaI  
 -----  
 AcyI BfaI  
 -----  
 241 GCCACGAGC TACCCGGAGG AGCGGGAGGC GCCAAGCTCT AGA  
 CGGGTGCTCG ATGGGCTCC TCGCCCTCCG CGGTTGAGA TCT

c6-39

SRE → MEF-2 → MEF-1  
 ggccgtccgc cctcgggaca cccaaatatg ggcacggcg tctaaaaata actccc **ccaa** 60  
 MEF-1 → SRE → ← MEF-1 MEF-2  
 cacctgctgc ctgccc **gacac** ccaaatatgg caacgg **ggca** ggcagcaggt gtttgg **cqct** 120  
 MEF-2 →  
 ctaaaaaataa ctccc **ccccga** gggcggacgg ccggggccgc attcctgggg gccgggagggt 180  
 gctcccgccc gcctcg **ataaa** aagggtccgg ggccggcggc ggcccacgag ctaccgggag 240  
 gagcgggagg cgccaagctc taga 264

Figure 19

EagI BsmFI  
 -----  
 1 CGGCCGTCCG CCCTCGGGAC ACCCAAATAT GGCGACGGCG CTCTAAAAAT AACTCCCCCA  
 GCCGGCAGGC GGGAGCCCTG TGGGTTTATA CCGCTGCCGC GAGATTTTTA TTGAGGGGGT  
 61 ACACCTGCTG CCTGCCGACA CCCAAATATG GCAACGGGGC NAGGCAGCAG GTGTTTGCGG  
 TGTGGACGAC GGACGGCTGT GGGTTTATAC CGTTGCCCCG NTCCGTCGTC CACAAACCGC  
 BstNI  
 -----  
 EcoRII  
 -----  
 MvaI  
 -----  
 EagI BsmI  
 -----  
 121 CTCTAAAAAT AACTCCCCCC GAGGGCGGAC GGCCGGGGCC GCATTCTCTG GGGCCGGGCG  
 GAGATTTTTA TTGAGGGGGG CTCCCGCCTG CCGGCCCCCG CGTAAGGACC CCCGGCCCCG  
 BmyI  
 -----  
 BsiHKAI  
 -----  
 Bsp1286I  
 -----  
 HgiAI  
 -----  
 AspHI TaqI  
 -----  
 181 GTGCTCCCGC CCGCCTCGAT AAAAGGCTCC GGGGCCGGCG GCGGCCACG AGCTACCCGG  
 CACGAGGGCG GGCGGAGCTA TTTTCCGAGG CCCC GGCCCGC CGCCGGGTGC TCGATGGGCC  
 BsrFI  
 -----  
 BanI  
 -----  
 BsaHI  
 -----  
 KasI MaeI  
 -----  
 NarI XbaI  
 -----  
 BsrBI AcyI BfaI  
 -----  
 241 AGGAGCGGGA GGCGCCAAGC TCTAGA  
 TCCTCGCCCT CCGCGGTTCT AGATCT